



An Introduction to Wargaming

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The views expressed in this briefing are those of the speaker and do not necessarily represent those of the Air Force Research Laboratory or the United States Air Force.



My Bio

- Civilian positions
 - Professor of Wargaming, ACSC
 - Research Associate, SAAS
- USAFR Assignments
 - Senior Reservist, AFRL, Info Directorate
 - Chief Wargaming, AF/XOOC (Checkmate)
- Co-author Gulf War Fact Book

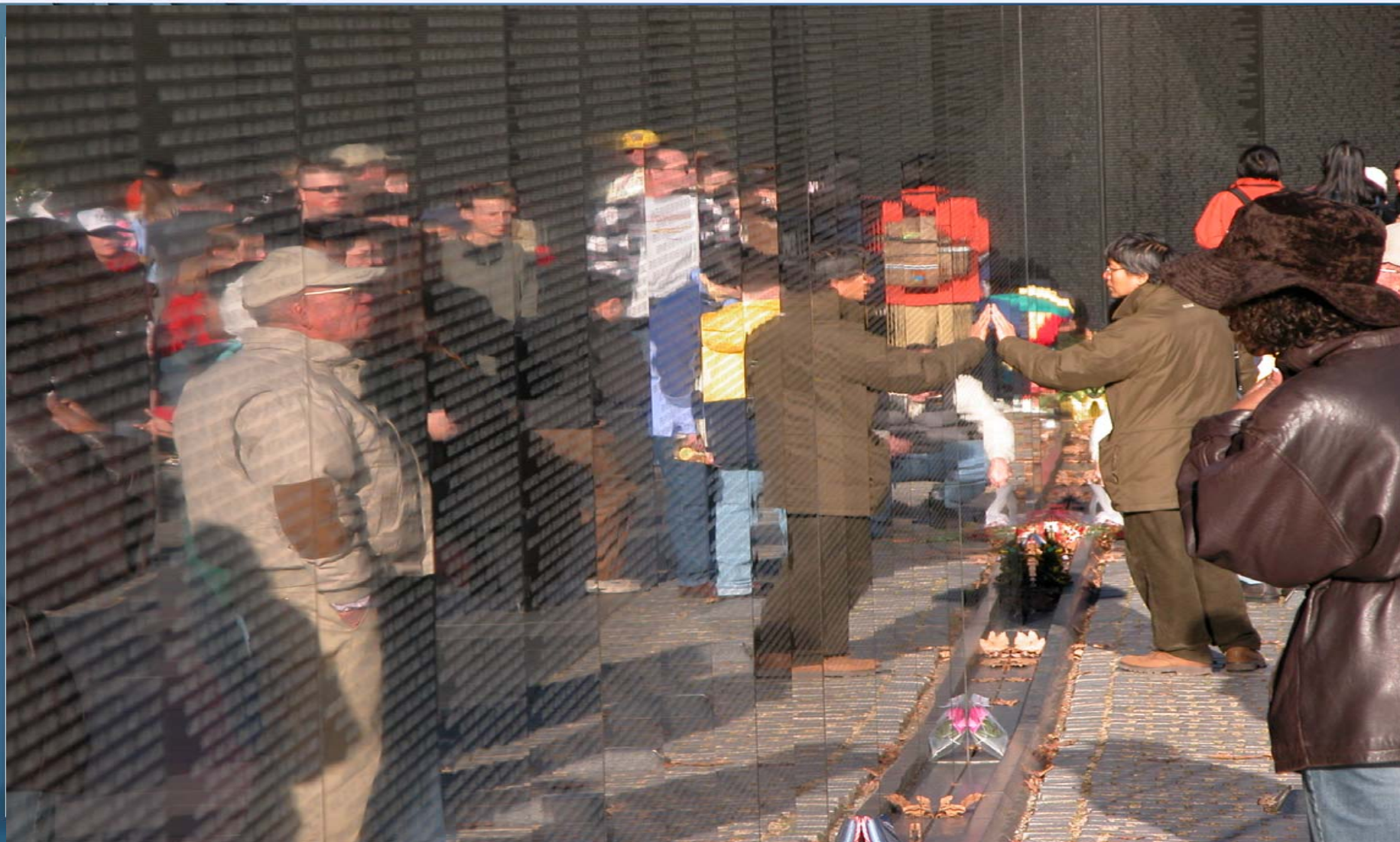


Why Should I Care?





Why Should I Care?



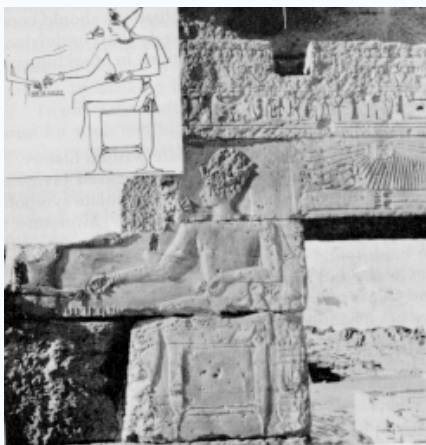


Overview

- History
- Definitions
- Applications
- Lessons from the History of Wargaming

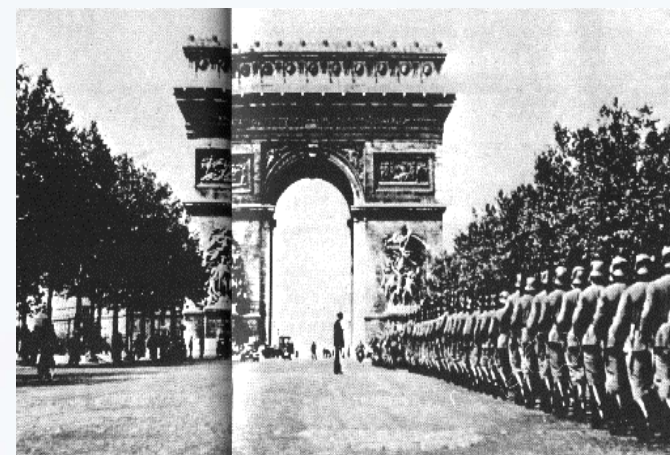


A One Slide History of Wargaming



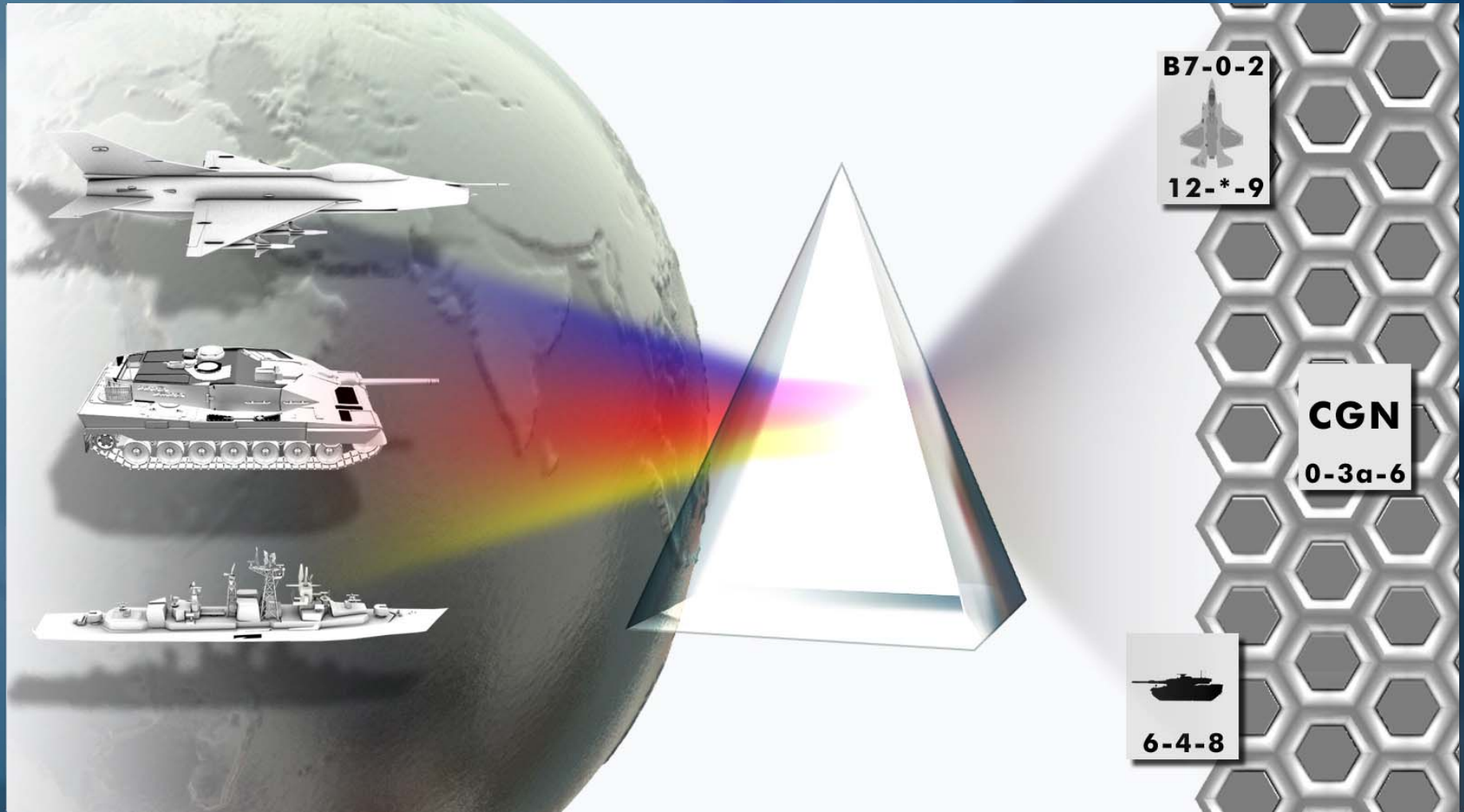
Wargames are literally as old as civilization...

...and they have often been credited with making the difference between victory and defeat



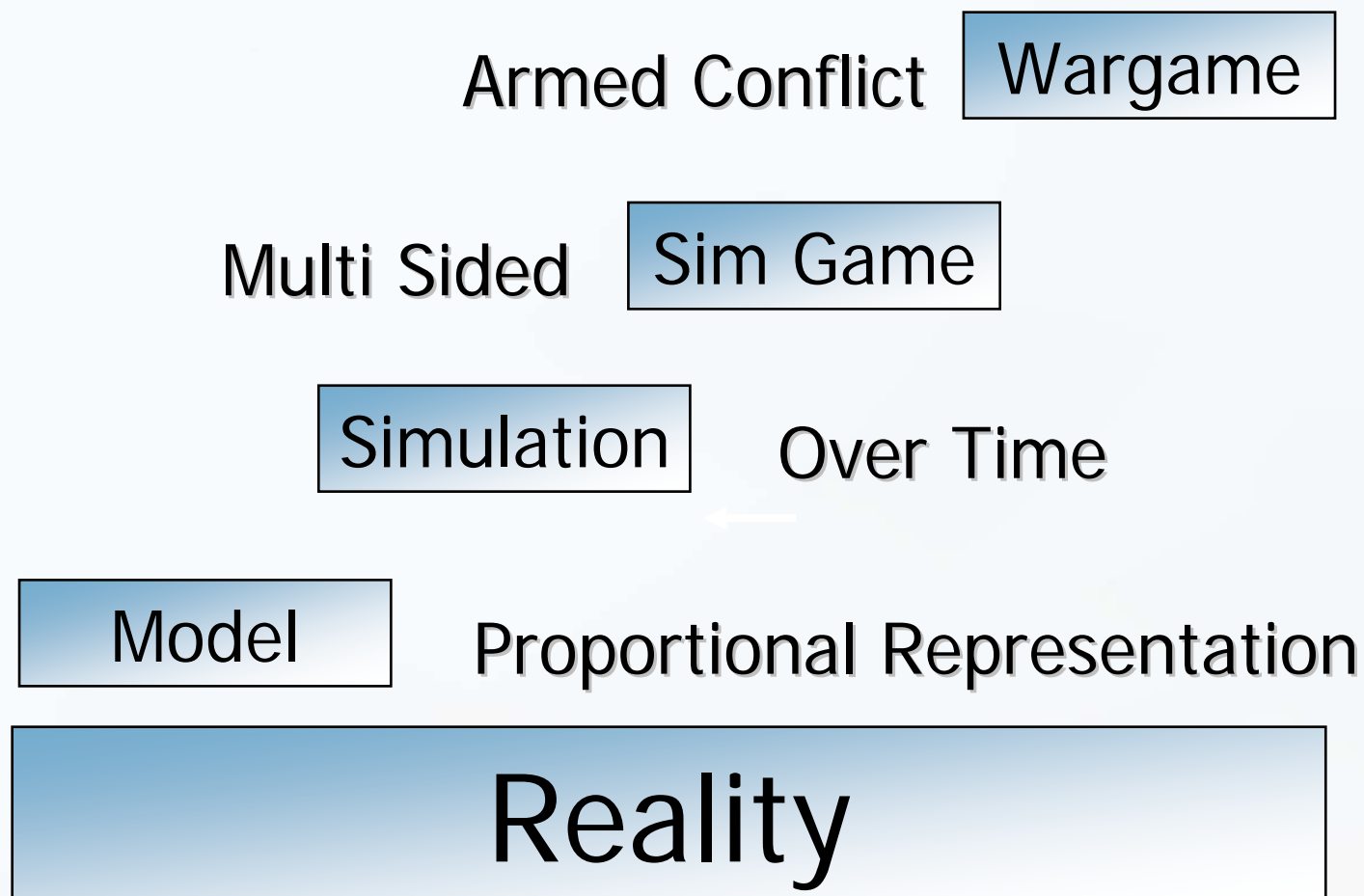


What is a Wargame?



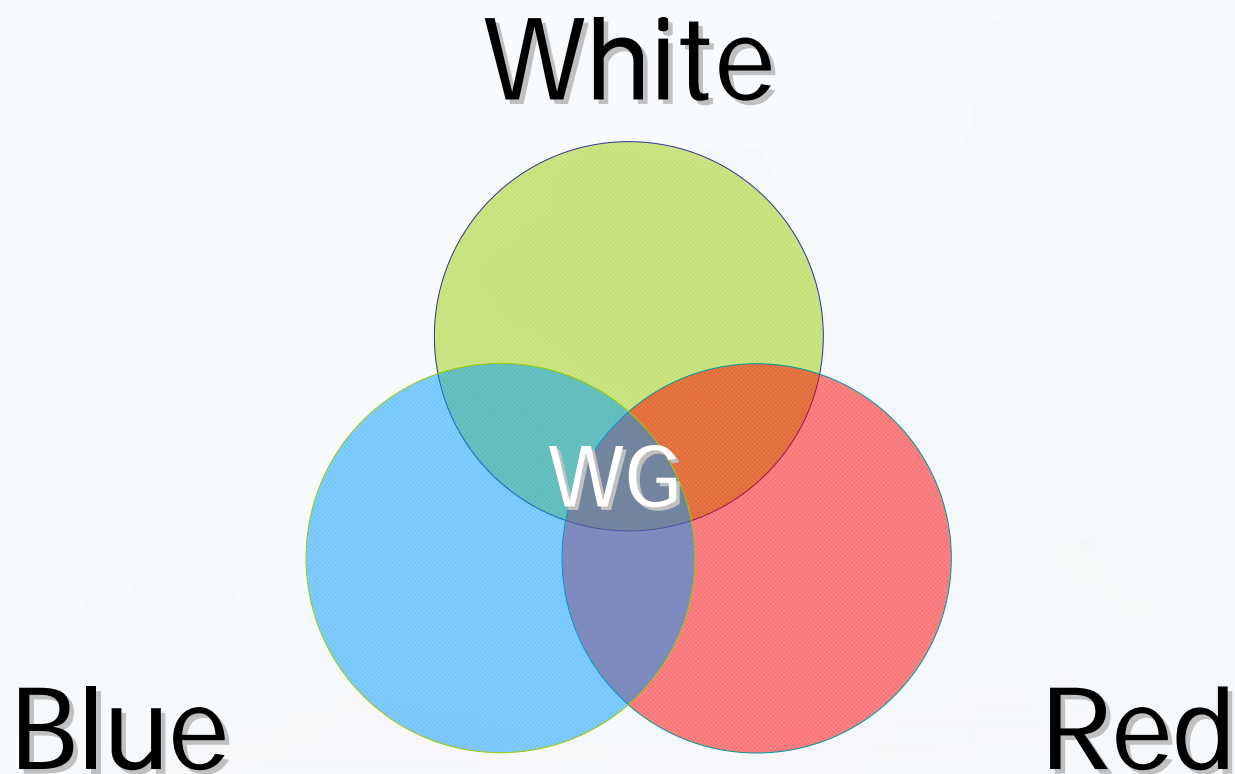


What is a Wargame?





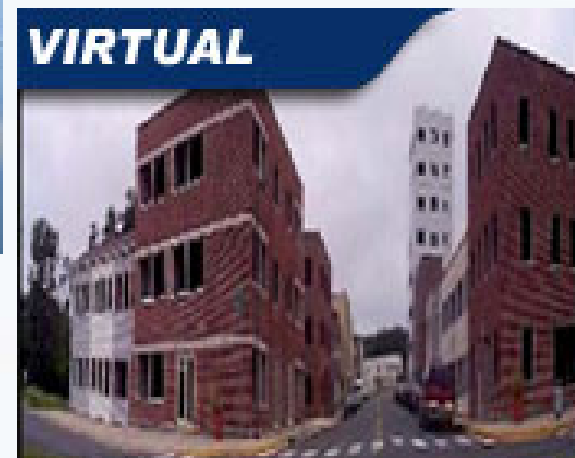
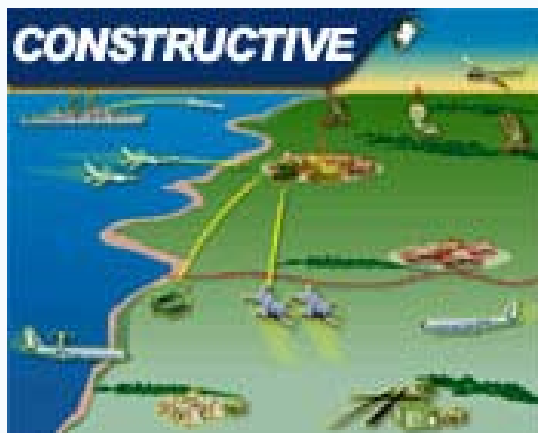
What is a Wargame?





What is a Wargame?

Types of Wargames

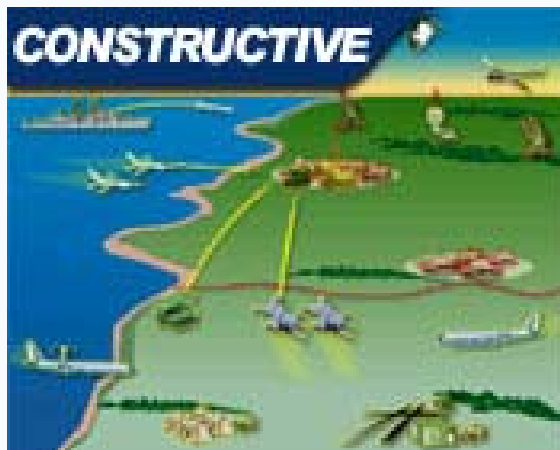


- Each has advantages and disadvantages
- Some wargames include all three



What is a Wargame?

Methods of Adjudication



**Rule Based
or
BOGSAT**



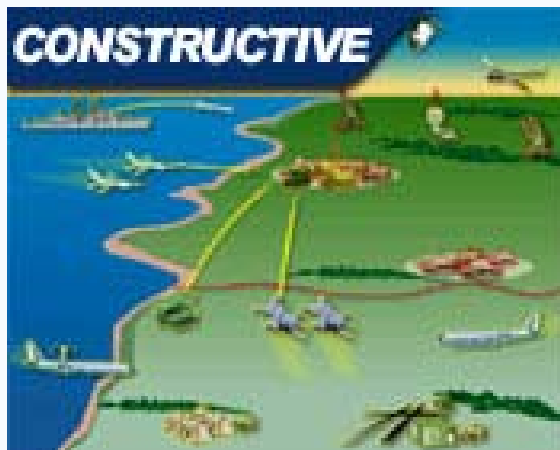
Umpires





What is a Wargame?

Methods of Adjudication



**Rule Based
or
BOGSAT**



Umpires

**Computerized
M&S**





Types of Constructive Wargames



Miniatures/Terrain Table



Map/Chart/Paper

Computerized





Applications

Civil Use of Wargaming

- Recreational
- Educational

Defense Uses of Wargaming

- Develop Strategist – Professional Development
- Develop Strategies – Decision Support



Spectrum of Military Wargaming Today

Develop Strategies

National

Theater

Local

Decision Support



Develop Strategists

War College

Staff College

Branch Schools

Professional Dev





Develop Strategist – Professional Development



Develop Strategists

War College

Staff College

Branch Schools

Professional Dev



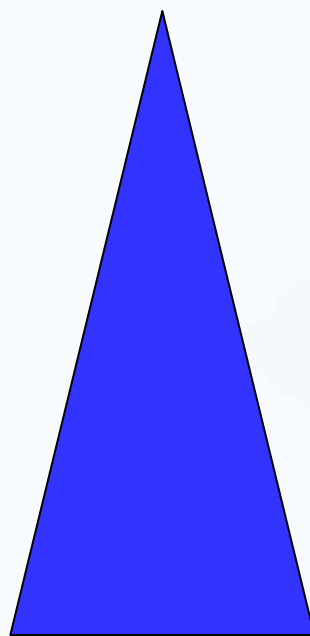


Develop Strategist – Professional Development

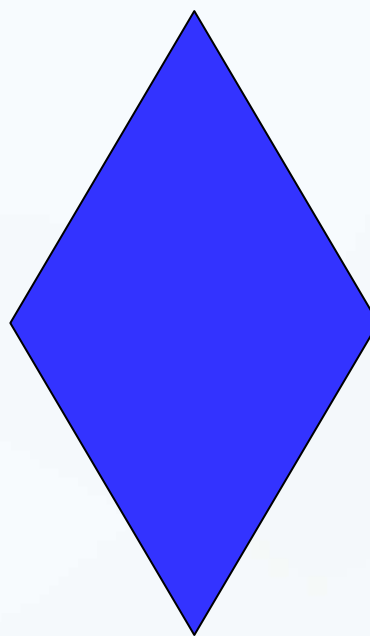
Strategic

Operational

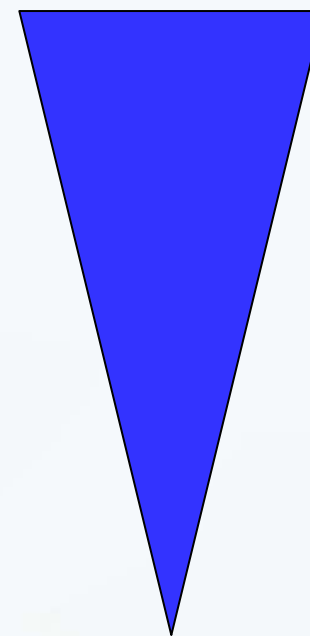
Tactical



Initial



Intermediate



Senior



Develop Strategies – Decision Support

Develop Strategies

National

Strategic

Theater

Operational

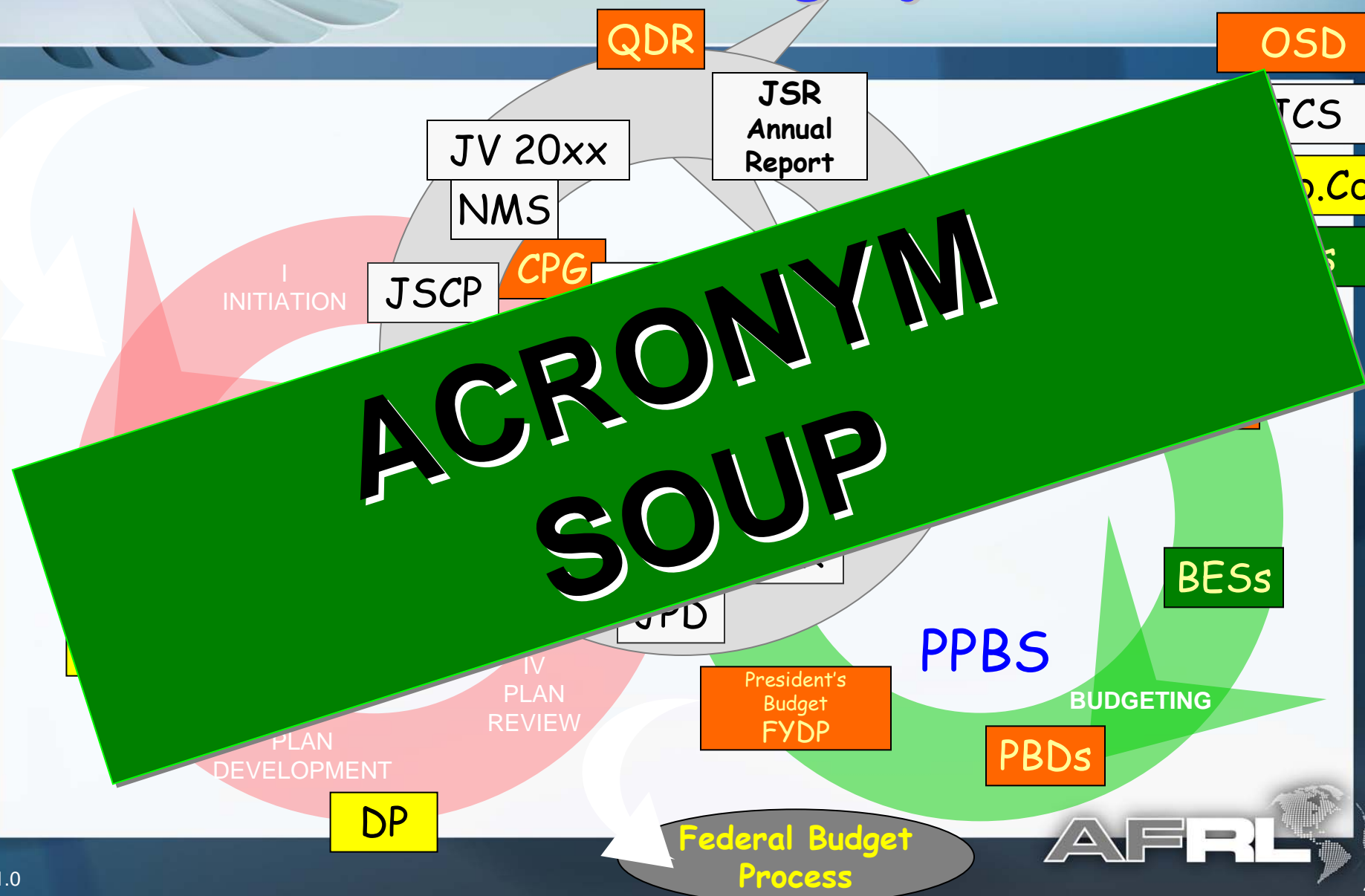
Local

Tactical

Decision Support



Defense Planning Systems





Wargaming as Decision Aide

US Government, DoD/CoComs/Services





Strategic Wargaming and The Defense Planning Systems





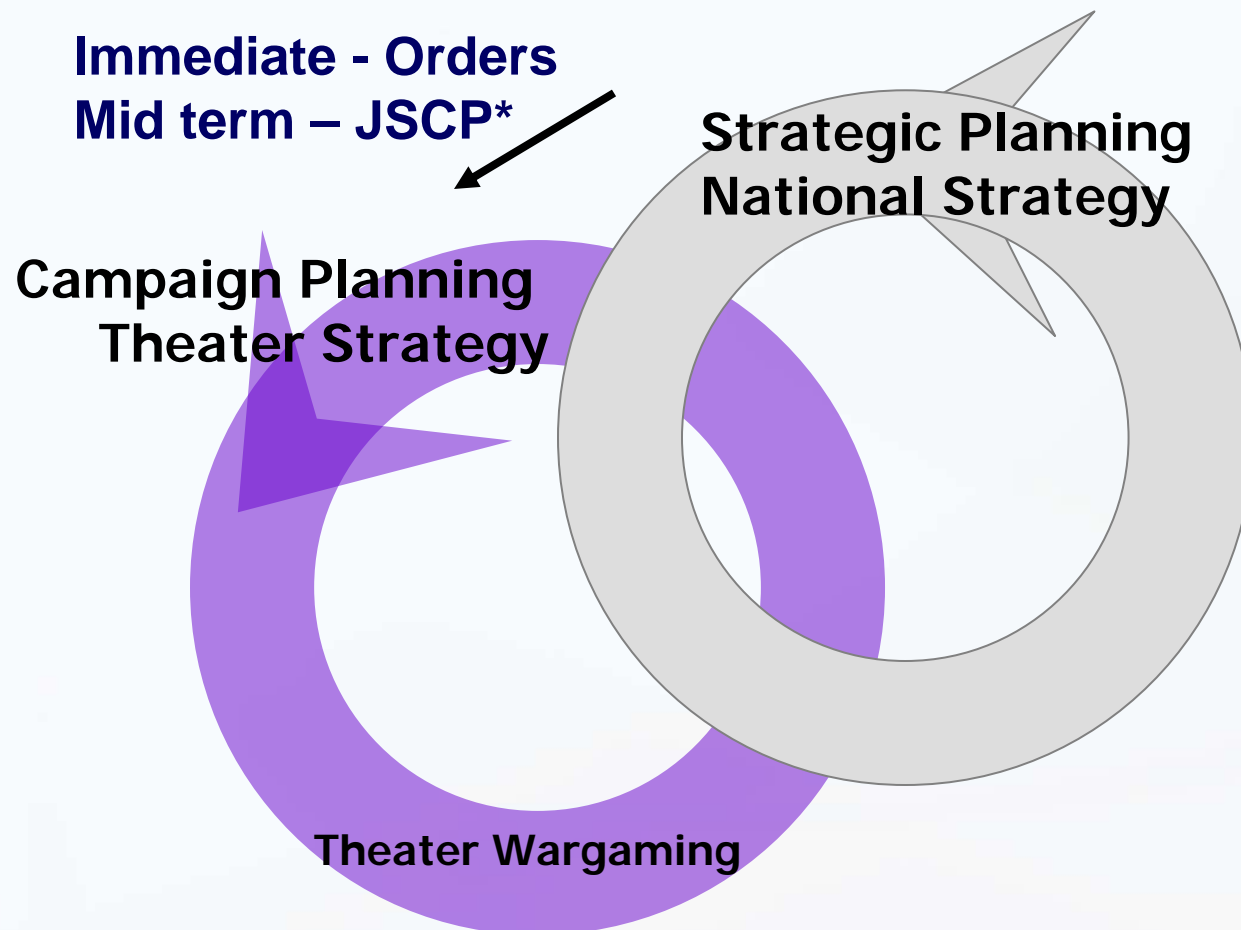
National Strategy Pol/Mil Wargaming

- Joint and Interagency
- BOGSAT adjudicated
- Not only secret – very close hold





Strategic Wargaming and The Defense Planning Systems



JSCP = Joint Strategic Capabilities Plan

Theater Strategy, Campaign Wargaming

Deliberate Planning

JSCP

IPL

Initiation

Concept
Development



Plan
Development

Plan
Review

Supporting
Plans

No Plan

**OPLAN
CONPLAN
FUNCPLAN**

Event

Develop

Expand

Modify

Situation
Development

Crisis
Assessment

Course of
Action
Development

Course of
Action
Selection

Execution
Planning

Execution

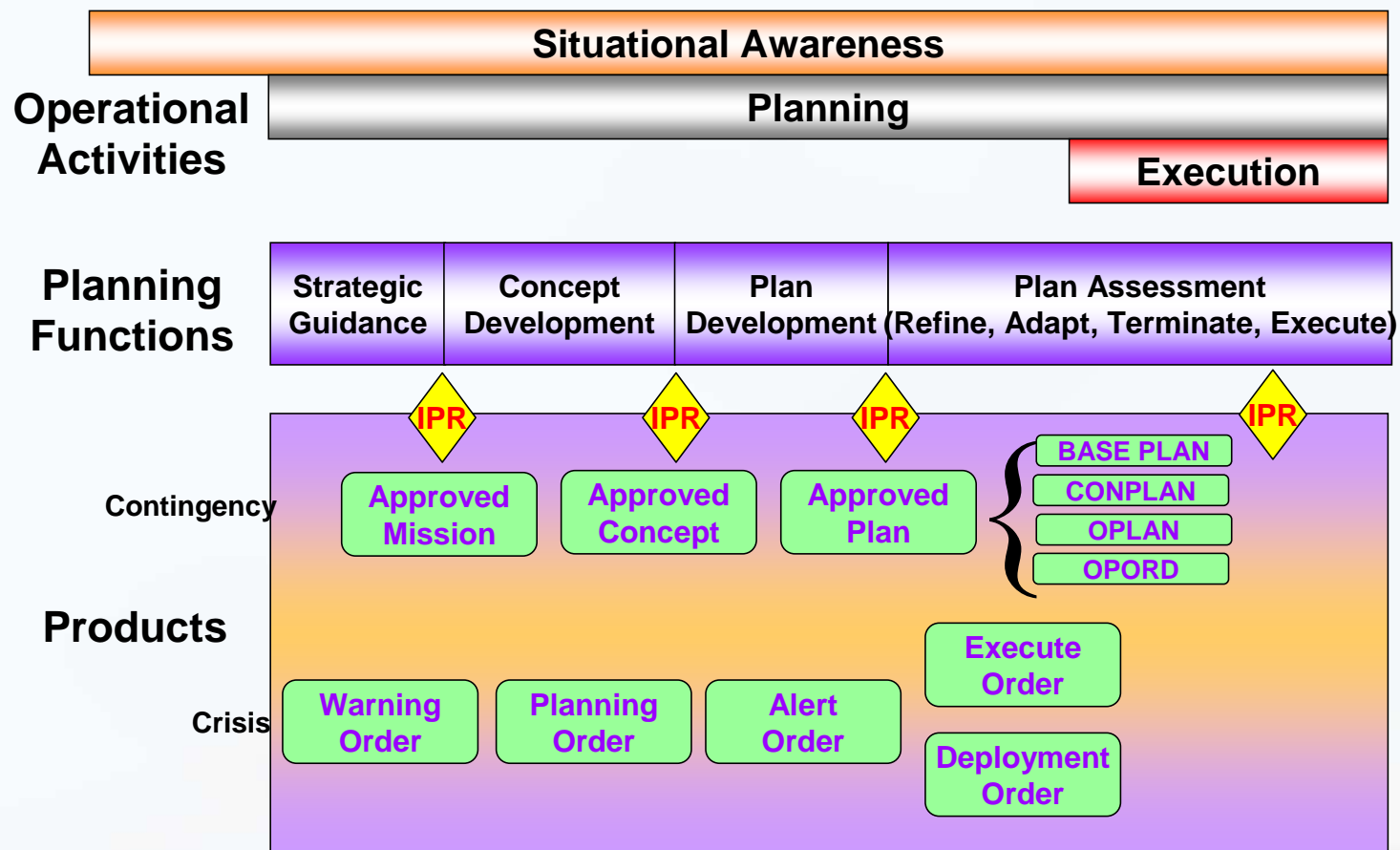
Crisis Action Planning

Campaign Plan OPORDs



Adaptive Planning

Activities, Functions, Products





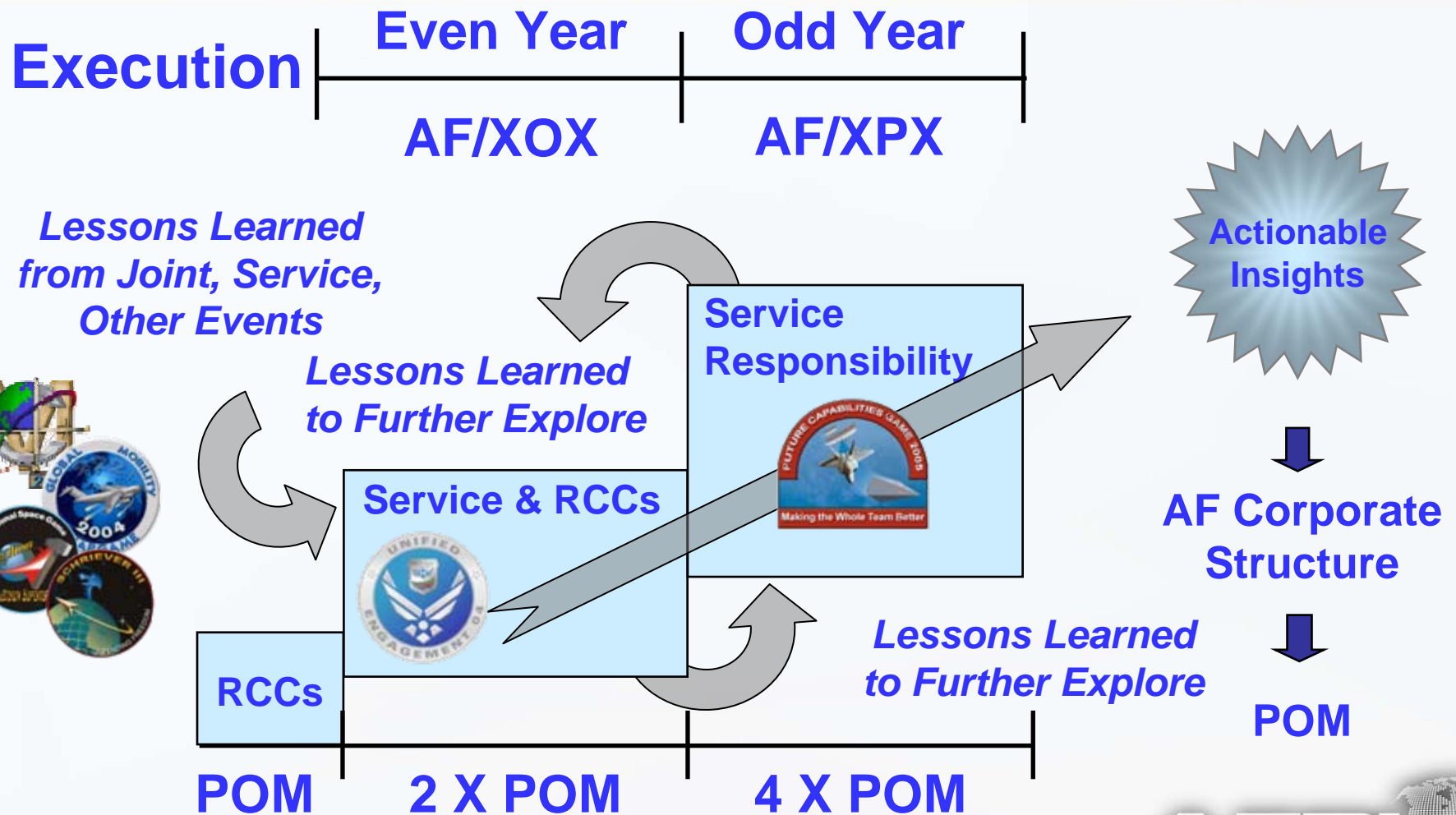
Strategic Wargaming and The Defense Planning Systems





Service Strategy, Title 10 Wargaming

Example Air Force





Lessons From The History of Wargaming

So far we have covered:

- What wargames are
- What are their applications

Now we will cover:

- How to receive the maximum benefit from wargaming



More Value From Wargaming

Professional Development

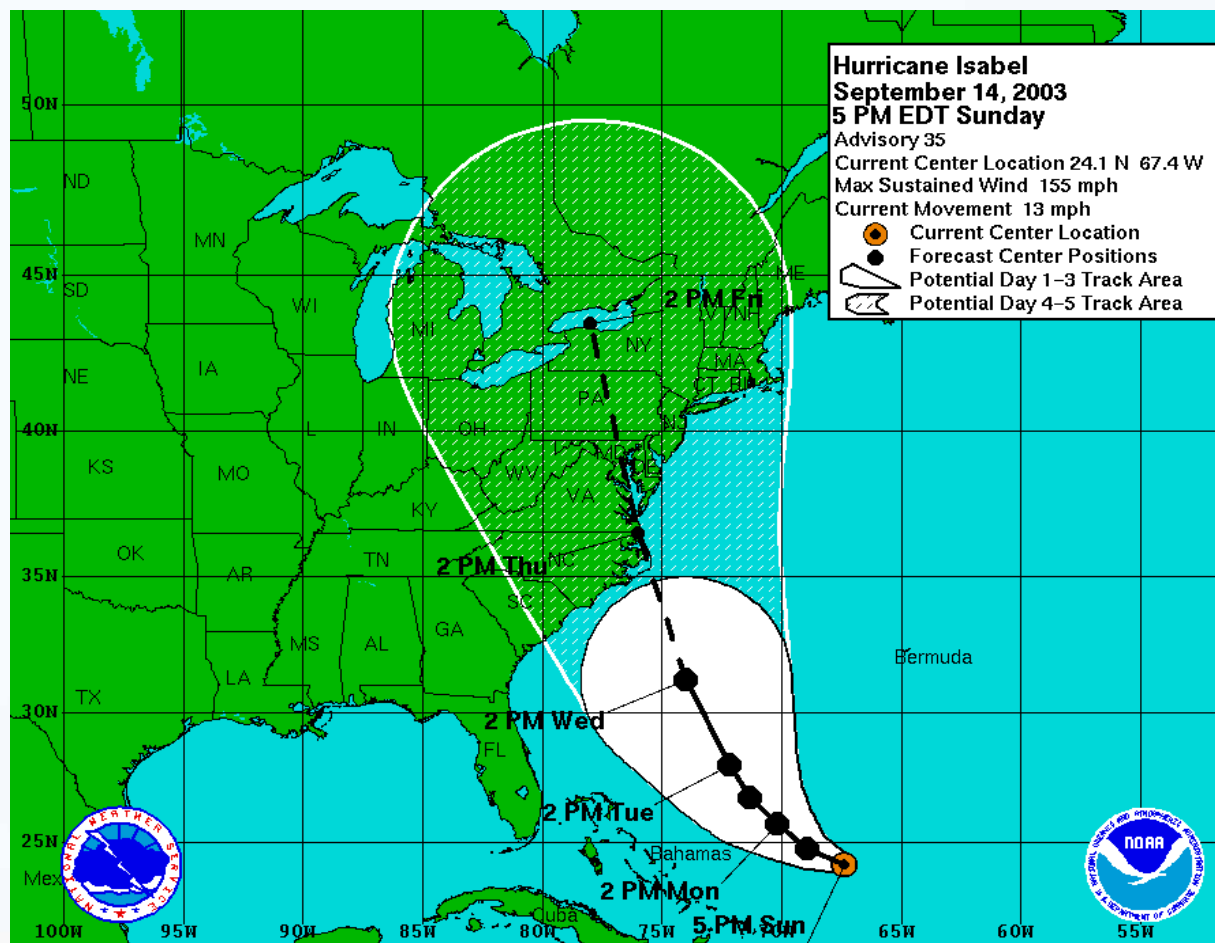
- Efficient
 - Minimize cost in \$\$
 - Minimize cost in time
 - Deployable
- Effective
 - Memorable
 - Fits curriculum
 - Avoids “dis-training”

Decision Support

- Efficient
 - Minimize cost in \$\$
 - Minimize cost in time
 - Deployable
- Effective
 - Fit to adversary/scenario being considered
 - Probability envelope of outcomes matches actual envelope



Assessing Relative Confidence In Wargame Outcomes





How Accurate Is Wargaming?

- Each wargame is one pass through a series of chance events - play many wargames and a range of outcomes will occur:





How Accurate Is Wargaming?

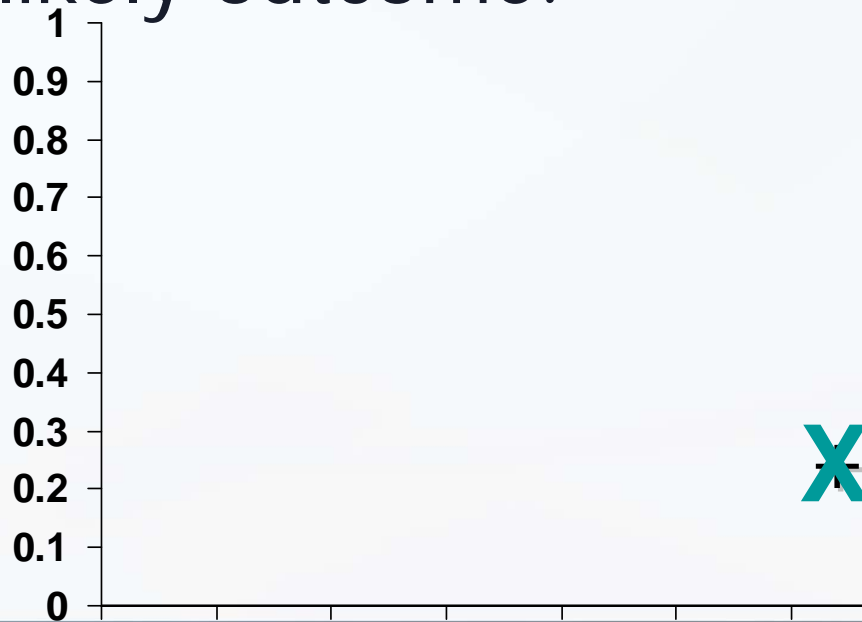
- Each **war** is one pass through a series of chance events – as such many outcomes are possible while some are more likely than others





How Accurate Is Wargaming?

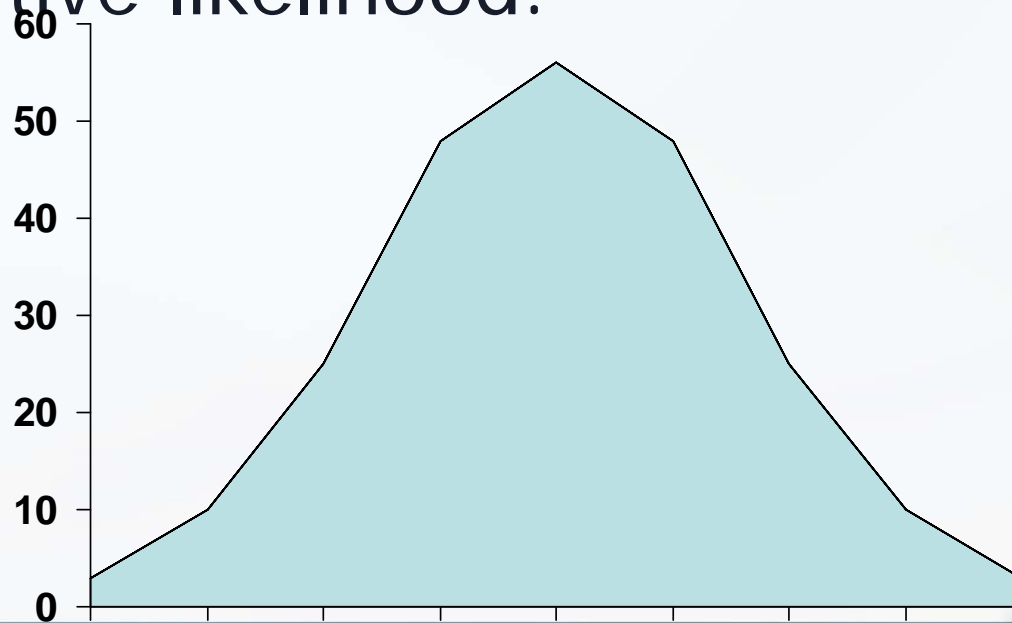
- Each **war** is one pass through a series of chance events – however what actually happened is not necessarily the most likely outcome.





How Accurate Is Wargaming?

- At best the outcome distribution of our wargames should match the outcome distribution of reality- then wargames can suggest which outcomes are possible along with relative likelihood.





How Accurate Is Wargaming?

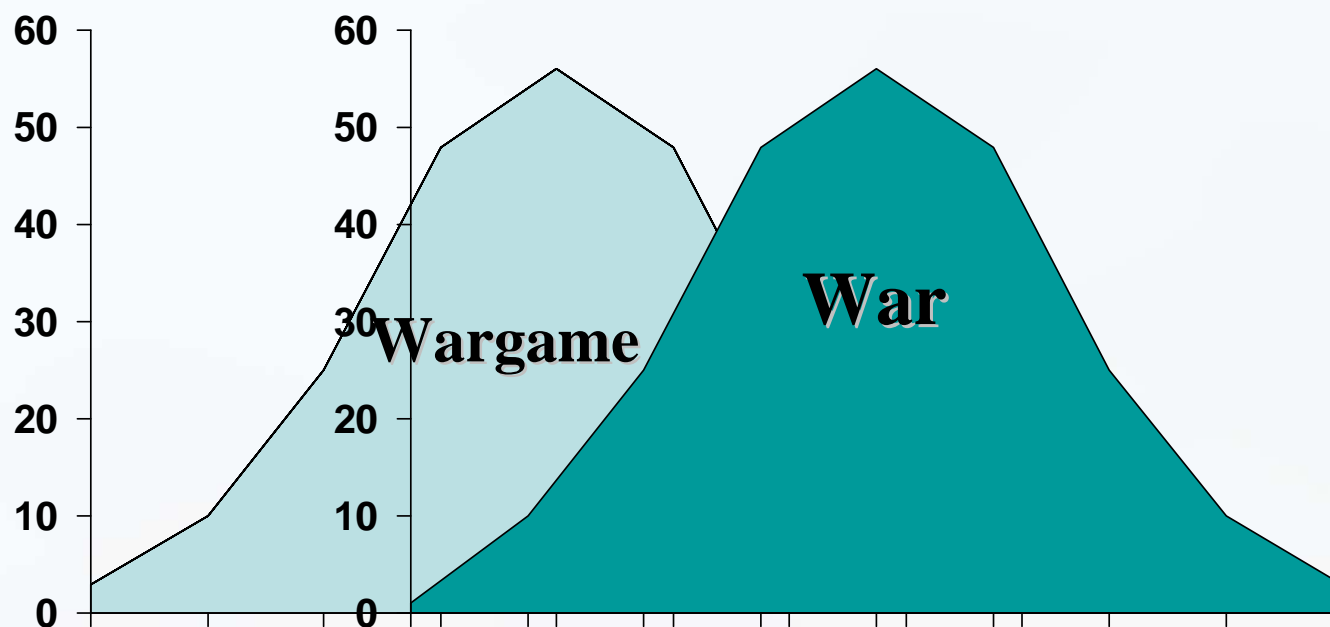
- However BOGSAT adjudicated wargames are so time consuming they typically produce only one outcome. Even if the most likely outcome is determined the range and likelihood of other outcomes is not captured

X



How Accurate Is Wargaming?

- Even when there are many runs the outcome distribution of wargames seldom matches the outcome distribution of reality



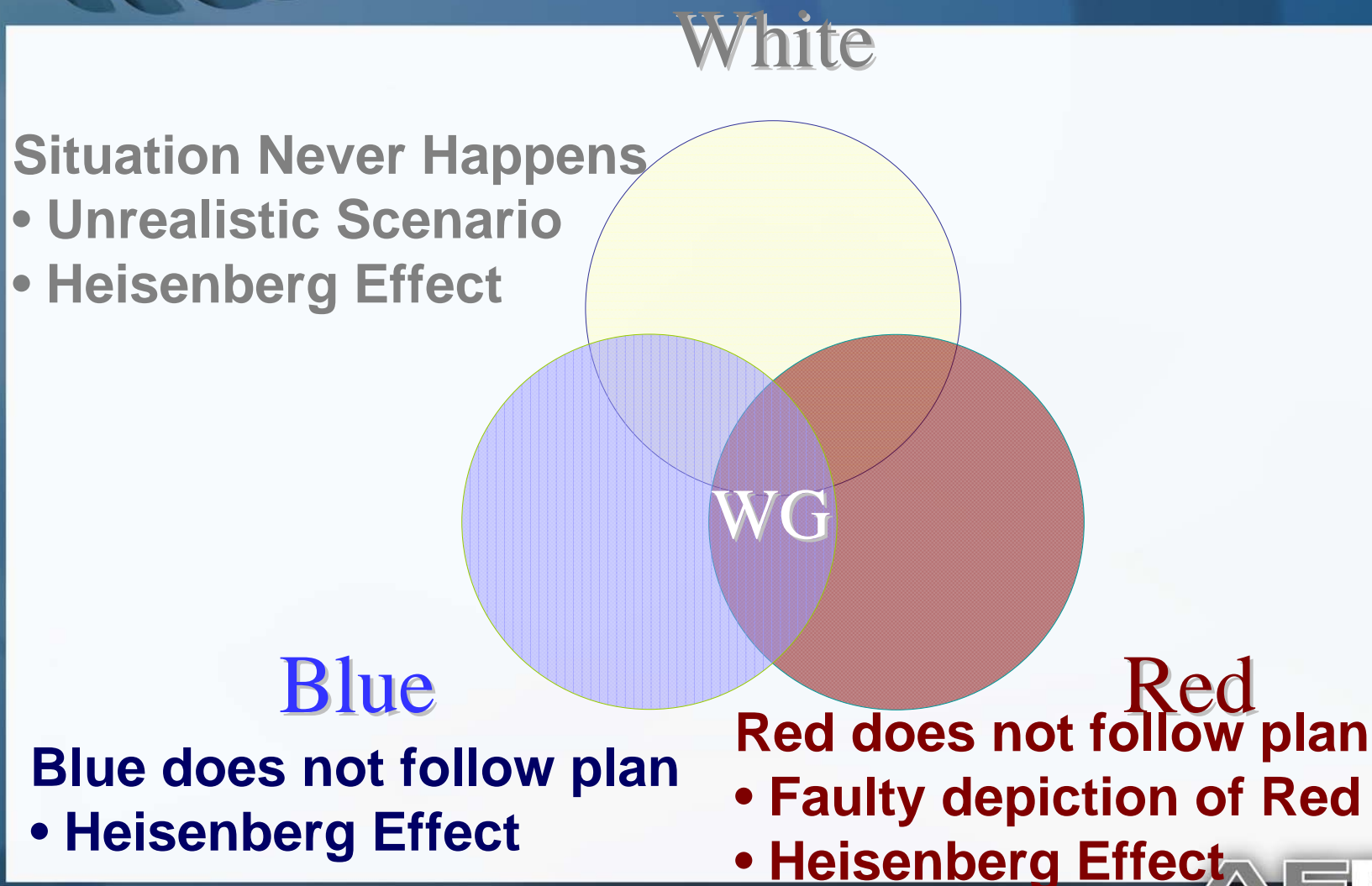


Coping with Uncertainty

- Achieve the best accuracy you can given your goals and resources
- Honestly assess and communicate the “standard deviation” of your wargame



Sources of Inaccuracy





Toward More Effective Scenarios

- Collaborative/Joint Development
- Increased use of "Move Zero"



Depicting Blue More Accurately

“Players” during wargame need to be decision makers during actual event

- Combining Deliberate and Crisis Action Planning (CAP)
- Wargames increasingly Joint and Combined
- Increased interagency NGO participation

Also, increased professional development wargaming should increase overall quality of Blue play.



Depicting Red More Accurately

"This is not (exactly) the enemy we wargamed against."

Lt Gen William Wallace
Commanding Gen V Corps
Operation Iraqi Freedom





Depicting Red More Accurately

Easy

- Study Red History
- Study Red Culture
- Study Red Doctrine



Depicting Red More Accurately

Less Easy

- Determine Objectives
- Determine Training Heritage
- Determine Planning Methods



Depicting Red More Accurately

Hard

- Determine how Red is actually training
- Determine how Red sees Blue
- Anticipate when Red will shift strategy/doctrine



Assessing the Likelihood of Accurate Adjudication

Factor	More Accurate		Less Accurate
Executions	Many	↔	Few
Factors	Physical Sci	↔	Social Sci
Scope	Detailed	↔	Comprehensive
Level	Tactical	↔	Strategic
Adversary	Symmetric	↔	Asymmetric
	Doctrinaire / Centralized		Decentralized
Technology	Old	↔	New
Strategy	Attrition	↔	Effects



Achieving More Accurate Adjudication

Historical Challenges

- Command interference in adjudication
- Failure to adjudicate key factor
- Failure to adjudicate full event
- "Bad" data



Achieving More Accurate Adjudication Emerging Challenges

- New Threats
 - Asymmetric Adversaries
 - Global Terrorism
 - Anti Access
- New (and rediscovered) Concepts
 - Network Central Warfare
 - Effects Based Operations
 - Campaign Planning
- New (and rediscovered) Tasks
 - Rapid Adaptive Planning
 - Expeditionary Air Operations
 - Winning the Peace



Wargaming Today

Existing Models

By

Duration Depicted

“Months to Years”

Conflict Level

“Days to Months”

Campaign Level Models

“Hours to Days”

Mission Level Models

“Seconds to Hours”

Engineering and
Engagement Models





Generations of Wargaming

3rd Generation - system EFFECTS

2nd Generation - ATTRITION forces

1st Generation - mind STRATEGY

Evolve the State of the Art



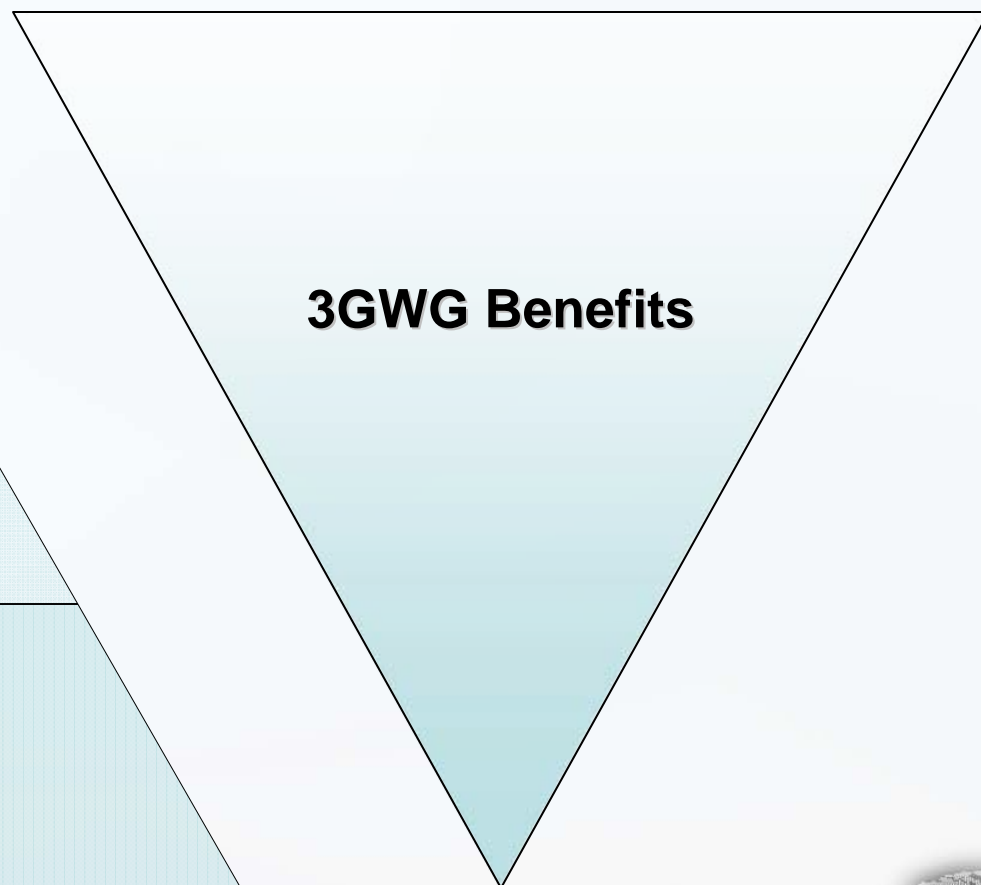
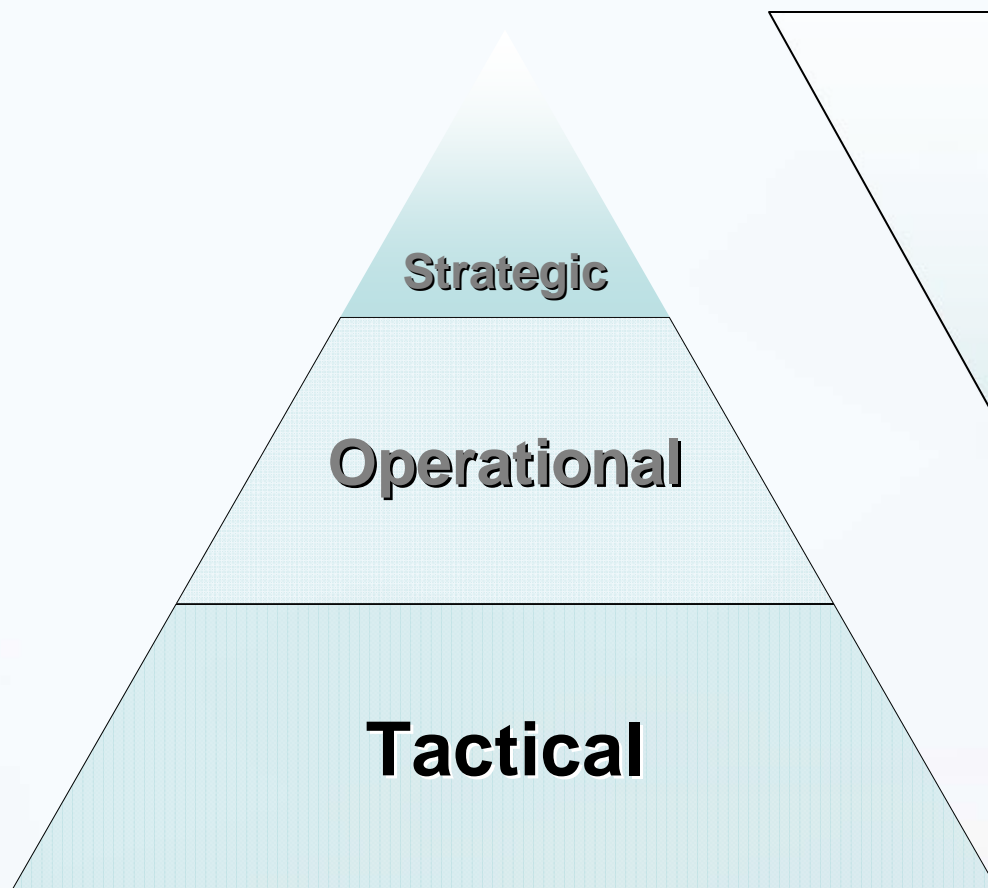


Third Generation Wargaming

- Adjudicates EBO through adding
 - Human Factors
 - System Effects
 - Decision Cycle
- Shrinks warfighter's Decision Loop
 - Expeditionary hardware
 - Fast to learn and execute interfaces
 - Inherent reach back capability



Third Generation Wargaming's Contribution





Conclusion

- Wargaming can give us an important edge over our adversaries, or they can give our adversaries an edge over us
- Today tactical attrition wargames are more accurate than strategic effects wargames
- Better Blue, Red and White (adjudication) can increase the accuracy of all wargames – especially at the campaign and strategic
- Better Wargames can help us shorten wars – and win the peace



To Learn More

- History
 - The Art of Wargaming, Peter Perla, 1990
 - www.airpower.maxwell.af.mil/airchronicles/cc/caffrey.html
- Current Events
 - www.au.af.mil/au/awc/awcgate/awc-sims.htm
 - www.msrr.dmso.mil/
 - www.afmsrr.afams.af.mil/
 - www-leav.army.mil/nsc/warsim/index.htm



Assessing Confidence in Insights

More Confident

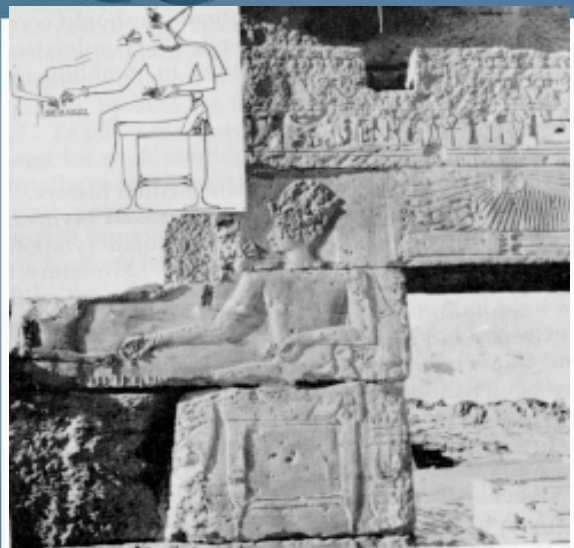
- Tactical
- Physics
- Kinetics
- Red Similar Culture
- Short Duration (battle)
- Many "Runs"
- Attrition

Less Confident

- Strategic
- Human Factors
- Non- Kinetics
- Red Dissimilar Culture
- Long Duration (War)
- Few or 1 "Run"
- Effect



A One Slide History of Wargaming





Forecasting the Future

NATIONAL WEATHER SERVICE/NATIONAL HURRICANE CENTER ADVISORY NUMBER 11
PROBABILITY THAT CENTER OF IRENE WILL PASS WITHIN 75 STATUTE MILES
DURING THE 72 HOURS STARTING AT 5:00 PM EDT FRI OCT 15 1999

